October 4, 2019

Valois Robinson
U.S. EPA Region 8
Mail Code 8WD-SDU
1595 Wynkoop St.
Denver, CO 80202-1129

Re: Docket No. EPA-R08-OW-2019-0512

Dear Mr./Ms. Robinson:

I have the following comments about the Dewey-Burdock uranium in-situ recovery project. I am not a scientist but have read the various e-mails, letters and Biological Assessment document. I am not clear on what all of the potential uses are for uranium but do know that it is used in the building of nuclear weapons and nuclear energy facilities. Both of these involve the potential for long-term environmental contamination in the case of an accident or failure. In my comments I will reference various parts of the relevant e-mails, letters and the Biological Assessment.

The first thing I would like to point out is the June 14, 2019 letter from the EPA to USFWS requested concurrence with the EPA's conclusion that issuance of the underground injection control permits for the project **may affect, but is not likely to adversely affect**, the listed threatened or endangered species or the designated critical habitat for the species found in/near the project area. The July 8, 2019 response from USFWS to EPA states that the agency concurs with EPA's conclusion that the project **will not adversely affect listed species**. This is not the concurrence EPA asked for and should be clarified.

Scope of the Project

The project encompasses 4,282 hectares of predominantly private land approximately 13 miles NW of Edgemont and 46 miles W of the Pine Ridge Reservation. It includes injection, recovery and monitoring wells in 14 wellfields (Class III) and up to 6 wells (Class V) for wastewater disposal. The permit area and one-mile buffer is located within the Great Plains physiographic province on the edge of the Black Hills in Custer and Fall River Counties, SD and contains 10,580 acres of wildlife habitat which supports medium and small-sized mammals as well as avian species. (BA, pp. 2 and 13)

**Comment**: The Black Hills area is not only popular for tourism, but more importantly, is a sacred site for Native Americans, and their rights should receive priority consideration when it comes to any possible disturbance to their sacred lands.

CONCERNS

Please note I have **bolded** specific words and phrases of concern. In addition, I have both ***bolded and italicized*** words or phrases that I consider to be ambiguous or undefined. Questions included within sections or comments are underlined.

Proposed Changes (8/26/19)

Class III:

1) The wellfield location buffer zone will be **reduced** from 1,600 feet to 1,000 feet. (P. 1)
2) Post-restoration groundwater monitoring **is no longer required**. Does this include the 8 uranium mines in the area that are no longer in use? (P. 6)

Class V:

1) No longer have specified intervals in the confining zone for core collection and **does not specify how much core to collect**.
2) Requires core from the upper confining zone of **only within the first injection well** constructed. (P. 7)

What is the reason for this change?

Classes III and V - Aquifer Exemption:

1) Addresses flexibility in the AE boundary location. (P. 13) - What does this mean?
2) Adds a 3rd option to allow Powertech to submit a SD Water Well Completion report to classify well 16 as a monitoring well and attach documentation that well 16 should not be used for human consumption because **groundwater produced from the well exceeds the primary drinking water standards for radium and gross alpha and radon levels are high enough that indoor use should be avoided**. (P. 13). What is the justification for this reclassification if it involves groundwater contamination?

Potential Environmental Effects - Conservation and Mitigation Measures

This section of the BA contains a number of conservation measures ***proposed*** by Powertech which include a number of ambiguous phrases such as ***controlling*** erosion, preserving natural vegetation ***as much as possible***, restoring disturbed vegetation, and **if** land application of wastewater is employed, ***improving drainage patterns*** in the affected areas. (BA, p. 11)

Mitigation measures ***proposed*** by Powertech include ***minimize*** road construction and traffic; construct new infrastructure in existing corridors; ***minimize*** areal impacts by sequential construction; and use dust control measures ***such as*** spraying water on vegetation to protect foraging vegetation. This paragraph references additional trees present in an area where **mining *is not projected* to occur in the near future** and states individual bats were seen near water bodies and treed habitats ***which are not currently scheduled for disturbance***. (BA, pp. 11-12)

Other ***proposed*** measures reference designing fences for ponds that won't alter habitat or impede wildlife migration; ***monitor water quality*** in wells that provide water to livestock and wildlife; provide other sources of water ***in the event of a drawdown***; use BMP's for constructing power lines to prevent bird injuries and *mortalities;* ***enhance habitats*** by land restoration and other measures; ***follow a raptor monitoring plan*** to minimize conflicts with active nests; ***allow*** snakes and lizards to retreat; and ***educate employees*** on wildlife laws and penalties associated with taking or harassing wildlife, types of wildlife they might encounter and how to avoid collisions. (BA, pp. 11-12)

Additional ***proposed*** measures include enforcing speed limits to reduce wildlife injuries and mortality; restore wildlife habitat by reseeding; ***adequately* cover ponds** to prevent access by migrating and breeding waterfowl; replace any jurisdictional wetlands that are disturbed; and conduct construction activities outside of breeding season. (BA, p. 12)

**Questions:**

1) Will these be proposals be included in the final permits and if so, will they be specific in term definition, extent, timing and amount of time allowed for completion?
2) Will monitoring programs for water quality, raptors and other factors have specific parameters and require submission of reports to EPA and USFWS?
3) Will wildlife experts be involved in establishing training programs for employees, raptor monitoring, and establishment of breeding and migratory seasons, etc.?
4) How, specifically, will employees "allow" snakes and lizards to retreat?
5) Who will be responsible for enforcing these measures?

Without specific language in the permits, these "proposed" measures are open to wide interpretation and will likely be unenforceable.

Pages 14-15 of the BA discuss short-term impacts on wildlife and habitat, both direct and indirect, during construction and operation, and the BA states indirect impacts typically continue longer than direct ones. Impacts during construction include reduced ability of species like the sage grouse (a threatened species which is considered an "indicator" species by biologists) to forage due to construction dust being deposited on vegetation; limited access to water and wintering habitat. These impacts to individual animals are possible if controls and practices ***proposed*** by Powertech do not limit all direct exposures to undiluted wastewater solutions containing chemical constituents. With regard to habitat disturbance, wooded areas could have a long-term impact because of the slower pace of natural revegetation.

**If wastewater is applied to the land April through Oct. via central pivot irrigation systems, more disturbance to wildlife and vegetation will occur, and the wastewater may contain harmful constituents of MCL's.** (BA, p. 15)

Injecting wastewater into Class V wells requires the use of settling and holding ponds to treat and store the wastewater. Wildlife may be exposed to harmful contaminants in the ponds. Powertech has ***proposed*** predisposed wastewater treatment ***to remove or reduce some*** of the regulated constituents discharged to the storage ponds. ***Temporary*** contamination or alteration of soils ***could occur*** from operational leaks and spills, transportation, and land application of treated wastewater. Powertech's estimated concentrations of trace metals in soils at the application sites **exceeded** EPA's ecological soil screening levels for cadmium, lead, and selenium. Bioaccumulation of these trace metals in the soil can increase their toxicity and adversely affect vegetation from the build-up of metals in the soils. **Plant and vegetative forage root systems will take up any contaminants in soil solution and contaminants can migrate through soil to shallow groundwater or nearby surface water, further increasing wildlife's exposure to harmful constituents**. (BA, p. 15)

The estimated 8-year operation period **will continuously affect** approximately 1,052 acres of vegetation, wildlife distribution, and wildlife habitat. The EPA concurs with NRC's conclusion that the overall impact on vegetation and wildlife for land application of ISR wastewater will be **moderate**. (BA, p. 15)

Wildlife will continue to be exposed to harmful wastewater constituents during aquifer restoration. Approximately 1,052 acres of vegetation and wildlife habitat will continue to be altered. The EPA concurs with NRC's conclusion that the overall potential impacts to vegetation and wildlife remain **moderate**. (BA, p. 16) 1)

Wastewater treatment and storage ponds present an opportunity for wildlife, primarily migratory birds, to have **direct** contact with ISR wastewater. When reviewing Powertech's estimated concentrations of cadmium, chromium, lead, and selenium in ISR wastewater, the NRC found that:

1) Concentrations of cadmium, chromium, lead and selenium **exceeded the EPA's long-term chronic exposure-based water quality criteria established for the protection of aquatic life.**
2) Concentrations of cadmium and lead **exceeded EPA's short-term acute exposure-based water quality aquatic life criteria.**
3) Concentrations of selenium **exceeded** levels referenced by USFWS (2007) as hazardous to aquatic birds.
4) Exposure would be unlikely because of Powertech's ***proposed*** wastewater controls. (BA, pp. 16-17)

Man-made noise from construction, operations and increased truck transport…can affect wildlife by inducing physiological changes, nest or habitat abandonment, or behavioral modifications and may also disrupt communications required for breeding or defense. (BA, p. 18)

There is potential for adverse effects resulting from wildlife exposure to chemical and radiological constituents. (BA, p. 18)

Ponds could attract wildlife that could be affected due to contaminant exposure through ingestion of prey and water, dermal uptake of contaminated water and airborne contaminants, and inhalation of airborne contaminants. (BA, p. 18)

Ponds, Groundwater and Air Quality Issues

Footnote 1 on p. 3 of BA states Powertech applied for an aquifer exemption to exempt the Class III wells in the Inyan Kara Group from protection as an underground source of drinking water because the Inyan Kara Group of aquifers **are** USDW's. **Injection of fluids into a USDW via Class III wells is prohibited under 40 CFR ss. 144.12. Why, then, would this exemption be granted if it is so clearly contrary to the statute?**

The Class III Area Permit **does not limit** the number of injection and production wells Powertech may construct. **Each wellfield would have up to several hundred wells operating interchangeably as production or injection wells.** Initial construction includes nine wastewater treatment and storage ponds, with center pivot irrigation systems and storage ponds to be constructed ***as needed***. After uranium removal, uranium depleted lixiviant will be re-fortified with oxygen and carbon dioxide and reinjected back into the wellfield via the Class III injection wells. During groundwater restoration, **these same wells** will be used to inject **clean(?)** water into the aquifer. The wells will pump groundwater out of the wellfields. **In the event of a groundwater sweep during restoration, no fluids will be injected and the production wells will pump groundwater out of the wellfield to a *deeper aquifer*, an adjacent wellfield where mining is being initiated, or to surface ponds where it can evaporate**. Monitoring wells will be placed in the overlying and underlying aquifers to detect **potential migration of lixiviant outside the production zone.** (BA, pp. 4-5)

Liquid waste generated by the project will be treated and injected into UIC Class V deep injection wells in the Minnelusa Formation. **A combination of deep well injection and *land disposal may also be considered if* the Class V wells do not have the capacity to dispose of the full volume of waste fluids.** (BA, p. 6)

**Powertech identified the need for additional storage ponds for treated water during non-irrigation season and spare storage ponds for emergency containment *should any of the storage ponds fail, or portions of the land application system become temporarily inoperable.*** Powertech to construct fences around the additional storage ponds. (BA, p. 6)

Powertech plans to operate center-pivot irrigation systems to manage and dispose of liquid wastes **24 hours per day from April through October**. SDDENR ***proposes*** to restrict land application when soils are frozen or snow-covered, generally November through March. During this time liquid waste would be stored temporarily in ponds located near the Burdock central plant and Dewey satellite facility. Runoff from precipitation will be directed to catchment areas downgrading of land application areas and **allowed to evaporate or infiltrate**. Powertech ***estimates*** that the maximum area for land application of treated wastewater will be 1,052 acres. (BA, p. 7)

**List of chemicals** in wastewater for the proposed land application activities includes arsenic, barium, cadmium, chromium, lead and selenium. (BA, p. 9)

Powerlines, Pipelines and Transport Risks

Powertech ***anticipates*** construction of a new electrical substation and a new corridor along Dewey Road between the Dewey and Burdock areas. (BA, p. 10)

Powertech ***proposes*** to install up to eight underground pipelines between the Burdock central processing plant and the Dewey satellite facility to transport various fluids used during ISR operations. Pipelines will transport fluids including barren and pregnant lixiviant, restoration water, reverse osmosis reject brines, wastewater from well drilling and maintenance operations, and supply water from the Madison Formation or ***other aquifers***.

Uranium-loaded ion exchange resin will be transported by tanker truck from the satellite plant to the central plant ***or to another licensed facility*** for processing. Yellowcake will be filtered, washed, dried and packaged in sealed containers for shipment via truck ***to another site*** where it will be further processed.

Powertech intends to utilize all existing roads and ***construct new roads only as needed*** to access proposed facilities. (BA, p. 10)

**Comments:**

1) The existence of underground pipelines always includes the risk of breaks and/or spills, and the combination of chemicals, wastewater and **aquifers** only increases that risk.
2) With Powertech's plan to use only existing roads, increased traffic in the area, both during construction and operation, will likely lead to accidents (with potential for spills) and loss of wildlife.
3) Has Powertech identified the other licensed facilities where uranium-loaded ion exchange resin will be transported or the other sites where yellowcake will be shipped? If so, will they be subject to approval by EPA and limited to sites or facilities that do not involve risks of traffic accidents or spills?

Effects on Wildlife

P. 1 of the BA states that the project could impact the following ESA-listed species: Northern Long-Eared Bat (threatened), Rufa Red Knot (threatened), Whooping Crane (endangered). P. 19 of the BA lists the following mitigation measures to avoid or minimize impact on these species:

If any of these species are sighted within one mile of the well sites or associated facilities, all construction or operations work must cease within one mile of the species' location and EPA and USFWS must be contacted **immediately**. Work may resume after the species leave the area. How will the contact with EPA and USFWS be made and by whom, and will a written report be required as well?

If construction is planned during migratory bird nesting and breeding season, a qualified biologist must conduct pre-construction surveys for migratory birds and their nests within 5 days prior to initiation of construction. (BA, p. 19). Who determines the timing of the nesting and breeding season? Is it considered to be the same each year or does it change from year to year?

The Permittee must install netting, use bird balls ***or other acceptable bird deterrent method*** to prevent birds and bats from accessing the ponds. (BA, p. 19)

Spills or leaks of chemicals and other pollutants at the UIC well site must be reported to the appropriate agencies. What is the timing and method for these reports?

The 8/1/19 email from Valois Robinson to Terry Quesinberry suggests investigating the Triangle Mine underground vent shaft to determine if it's a hibernacula for the Northern Long-Eared Bat, and if the shaft is found to be a hibernacula, restricting activity around the mine shaft during hibernation (Oct. to April) per the South Dakota Bat Management Plan. Powertech has suggested setting up a motion-activated camera to see if bats are coming in and out of the mine shaft and if bats are seen, setting up a 1/4 mile buffer zone where no activity will occur year-round. If no bats are seen on camera, Powertech would investigate the mine shaft to confirm the absence of bats and then put a finer mesh over the opening to prevent bats from entering. **This idea presupposes that Powertech will disclose the presence of the bats if found and will do a thorough inspection of the shaft if bats are not seen on camera. If they fail to take these steps, any bats hibernating in the mine shaft will be trapped inside by the mesh. Also, if the mine shaft is closed as a hibernacula, is it likely that the bats can find other areas to hibernate, especially if there is noise from construction or operations of the wellfields?**

In conclusion, I am concerned with the ambiguity of some of these "proposed" measures and what criteria will be used to determine if the measures are "acceptable," "adequate," "as needed," etc. I am also deeply concerned about the aquifer exemption to well 16 allowing for groundwater contamination that would render the water unsuitable for indoor use. The other aquifer exemption, relating to the Class III wells in the Inyan Kara Group, which are underground sources of drinking water, would be in direct contradiction of the statute. **We have environmental protection statutes for a reason, and any exemptions should be few and far between, particularly when they involve drinking water near the Black Hills.**

The Class III Area Permit **does not limit** the number of injection and production wells Powertech may construct. Each wellfield would have up to several hundred wells operating interchangeably as production or injection wells. (BA, p. 4)

The Biological Assessment sets forth a myriad of hazards involving the injection of wastewater into Class V wells. The use of wastewater and treatment ponds also poses significant risks, not just to water quality but to air quality for both animals and humans. Do we know the short-term and long-term effects on air quality and vegetation of allowing these ponds to evaporate?

Any "proposed" measures must be detailed and quantified in any permits issued. Right now it appears many of these items are at the discretion of Powertech, and one doesn't have to be a scientist or economist to know that the bottom line for business is profit, often at the expense of safety. I question the need for more uranium mining knowing the risks to the environment as well as the risks of nuclear energy. There are already 7 other non-operational uranium mines in the area as well as the Darrow/Freezeout/Triangle uranium mine, which was

abandoned in the mid-1980's due to a decline in uranium prices. If prices decline again, will these new wells be abandoned? If so, will Powertech be required to set aside sufficient funds for reclamation purposes?

Finally, it seems hazardous projects like this one have been disproportionately located near Native American lands or poorer areas. This is unjust and is particularly egregious when one considers that Native Americans have always had great respect for the land and the environment. We are at a critical point with our planet due to pollution, environmental damage and global warming and have a limited time to address these issues before some or all of them are not correctable. All of our efforts should be directed at finding and pursuing clean energy sources so that future generations will not have to suffer the consequences of our reckless disregard for our own planet.

Sincerely,

Ex. 6 Personal Privacy (PP)
Lakeside, CA 92040